CALIFORNIA ENERGY COMMISSION
Peak Load Reduction Program
Light Emitting Diode (LED) Traffic Signals
Program Summary

Grant Program Participants: 40 cities, 2 counties, 2 utilities, and CalTrans

Project Description: Conversion of incandescent traffic and pedestrian signals to those using high efficiency light emitting diodes (LED). Statewide 11,500 intersections were impacted with the conversion of more than 171,500 red, green and amber ball and arrow traffic signals and pedestrian signals. The projects, begun in December 2000, should all be completed by March 1, 2003.

Project Results: These projects will save over 55.6 million kilowatt-hours annually, reducing the summer peak electrical load by 7.1 megawatts. That is enough electricity for about 7,000 homes. A comparison of utility bills of the program participants demonstrates that energy use for intersections drops by an average of 50 to 80 percent after installation of the LED lights.

In addition to energy savings, most participants have reported that the public has embraced the LED signals because they are brighter than the old incandescent lights, thus increasing public safety. Other reported benefits include reduced labor costs, since the LED lights last longer than conventional incandescent traffic signals, and safer intersections, since there will be fewer lamp burn-outs. Since intersections with LED lights use less power, these intersections can now be equipped with a battery back-up system so that they operate either partially or fully in the event of power outages.

The price for LED lights continues to go down. Today's prices are about 30 percent lower than they were two years ago. With LED prices down and energy costs increasing, converting entire intersections to LED's can have a simple payback of less than three years, making this one of the most cost-effective projects for local governments.

Funding Details: The purchase and installation of the LED traffic modules cost $35 million. The Energy Commission grants provided $11.8 million of this cost, with the balance of the project funding provided by the program participants.

Lessons Learned: While some participants had difficulties with shipment delays, others saved time on the procurement process by using the California Department of Transportation's Pre-qualified Product List for LED Traffic Signal Modules (http://www.dot.ca.gov/hq/esc/approved_products_list/APL.pdf), the California Department of General Services Master Agreement list (http://www.pd.dgs.ca.gov/masters/ledtraffic), or the "piggy back" contracts with local governments. These lists and contracts enabled participants to act quickly to compare prices and procure the LED lights.

Project Participants by County:

HUMBOLDT: Eureka

LOS ANGELES: Azusa, Baldwin Park, Bell Garden, Cudahy, Glendale, LADWP-Los Angeles, Maywood, Paramount, Pasadena, Rosemead, South Gate

ORANGE: Anaheim, Costa Mesa, Mission Veijo, Westminster

PLACER: Roseville

RIVERSIDE: Moreno Valley, Palm Springs, Rancho Mirage, Riverside Public Utilities, Temecula

SACRAMENTO: Citrus Heights, Elk Grove, Folsom, Sacramento, Sacramento County

SAN BERNARDINO: Apple Valley, Chino Hills, Hesperia, Victorville

SAN DIEGO: Escondido, San Diego, San Marcos

SAN MATEO: Woodside

SANTA BARBARA: Santa Barbara

SANTA CLARA: Palo Alto, Santa Clara, Santa Clara County

SHASTA: Redding

SONOMA: Sebastopol

TULARE: Porterville

VENTURA: Moorpark, Ventura

CALTRANS: Statewide

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